WHAT IS CLAIMED IS:

1.   A method of color image processing based upon compressed data, comprising the steps of:

a) inputting original image data including pixel color values represented by a first number of color values in an original image;

b) approximating said pixel color values based upon a second number of color values so as to generate approximated color image data, said second number being smaller than said first number;

c) processing said approximated color image data so as to generate processed approximated color image data; and

d) outputting a reproduced image based upon said processed approximated color image data.

2.   The method of color image processing according to claim 1 wherein said first number is 256 while said second number 4.

3.   The method of color image processing according to claim 1 wherein said step a) further includes the following steps of:

e) optically scanning said original image data in an analog format for generating analog scanned image data in a first color system according to predetermined characteristics;

f) converting said analog scanned image data into digitized image data;

g) correcting said digitized image data based upon said characteristics so as to obtain corrected digitized image data; and

h) generating color signal values in a second color system based upon said corrected digitized image data.

4.   The method of color image processing according to claim 1 wherein said approximated color image data is transmitted from a first location to a second location between said step b) and said step c).

5.   The method of color image processing according to claim 4 wherein said steps c) and d) are performed at said second location.

6.   The method of color image processing according to claim 1 wherein said step c) includes enlargement, reduction and superimposition of said approximated color image data.

7.   The method of color image processing according to claim 1 wherein said step b) is performed by an error diffusion method.

8.   The method of color image processing according to claim 7 wherein said error diffusion method is performed by distributing weighted error values in surrounding pixel values.

9.   The method of color image processing according to claim 7 wherein said error diffusion is performed by accumulating weighted error values from surrounding pixel values.

10.   The method of color image processing according to claim 1 wherein said step b) is performed by a dithering method.

11.   The method of color image processing according to claim 1 further comprising an additional step i) between said

steps c) and d) of decompressing said approximated color
image data into processed decompressed data which
substantially represents said original image.

12.   A method of efficiently reproducing color image,
comprising the steps of:
    a) compressing pixel color values into compressed
color image data representing a smaller number of colors than
 original number of colors in an input image;
    b) image processing said compressed color image data
to generate processed compressed data;
    c) converting said processed compressed data to output
processed color image data; and
    d) reproducing an image based upon said output
processed color image data.

13.   The method of efficiently reproducing color image
according to claim 12 further includes the following steps
prior to said step a):
    e) optically scanning said original image data in an
analog format for generating analog scanned image data in a
first color system according to predetermined
characteristics;
    f) converting said analog scanned image data into
digitized image data;
    g) correcting said digitized image data based upon
said characteristics so as to obtain corrected digitized
image data; and
    h) generating color signal values in a second color
system based upon said corrected digitized image data.

14.   The method of efficiently reproducing color image
according to claim 12 wherein said step b) includes

enlargement, reduction and superimposition of said compressed color image data.

15.   The method of efficiently reproducing color image according to claim 12 wherein said step c) further includes the following steps of:

i) correcting intensity of said processed compressed data; and

j) correcting chromaticity of said processed compressed data.

16.   The method of reducing color image processing according to claim 15 wherein said step i) is performed based upon an intensity conversion look-up table.

17.   The method of reducing color image processing according to claim 15 wherein said step j) is performed based upon a chromaticity conversion look-up table.

18.   The method of reducing color image processing according to claim 12 wherein said step c) is performed based upon a conversion look-up table.

19.   A system for color image processing based upon compressed data, comprising:

an input unit for converting an original image into pixel color values representing a first number of colors;

an approximation unit connected to said input unit for approximating said pixel color values into approximated color image data representing a second number of colors, said second number being smaller than said first number;

a processing unit connected to said approximation unit for processing said approximated color image data so as to generate processed approximated color image data; and

an output unit connected to said processing unit for outputting an image based upon said processed approximated color image data.

20. The system for color image processing according to claim 19 wherein said first number is 256 while said second number 4.

21. The system for color image processing according to claim 20 wherein said first number is stored in 8 bits while said second number is stored in 2 bits.

22. The system for color image processing according to claim 19 wherein said processing unit further comprises an conversion unit for converting said processed approximated color image data so as to generate processed converted color image data.

23. The system for color image processing according to claim 19 wherein said inputting unit further comprises:

an optical scanning unit for optically scanning said original image data in an analog format for generating analog scanned image data in a first color system according to predetermined input characteristics;

an analog to digital convertor connected to said optical scanning unit for converting said analog scanned image data into digitized image data;

a scanner correction unit connected to said analog to digital convertor for correcting said digitized image data based upon said characteristics so as to obtain corrected digitized image data; and

a color conversion unit connected to said scanner correction unit for generating color signal values in a

second color system based upon said corrected digitized image
data.

24.   The system for color image processing according
to claim 19 wherein said approximation unit weighs a
difference between each of said pixel color values and
corresponding each of said approximated color image data
according to predetermined weights for generating a weighted
error, said approximation distributing said weighted error
among surrounding pixel values.

25.   The system for color image processing according
to claim 19 wherein said approximation unit weighs a
difference between each of said pixel color values and
corresponding each of said approximated color image data
according to predetermined weights for generating a weighted
error, said approximation unit accumulating said weighted
error value from surrounding pixel values.

26.   The system for color image processing according
to claim 19 wherein said approximation unit and said
processing unit are connected via a transmission line.

27.   The system for color image processing according
to claim 19 wherein said processing unit edits said
approximated color image data by a process including
enlargement, reduction and superimposition.

28.   A system for efficiently reproducing color image,
comprising:
a compression unit for compressing pixel color values
into compressed color image data representing a smaller
number of colors than original number of colors in an input
image;

an image processing unit connected to said compression unit for image processing said compressed color image data to generate processed compressed data;

a conversion unit connected to said image processing unit for converting said processed compressed data to output processed color image data; and

an output unit connected to said conversion unit for reproducing an image based upon said output processed color image data.

29.   The system for efficiently reproducing color image according to claim 28 further comprising:

an optical scanner for optically scanning said original image data in an analog format for generating analog scanned image data in a first color system according to predetermined characteristics;

an analog to digital converter connected to said optical scanner for converting said analog scanned image data into digitized image data;

a scanner correction unit connected to said analog to digital converter for correcting said digitized image data based upon said characteristics so as to obtain corrected digitized image data; and

a color system conversion unit connected to said scanner correction unit for generating color signal values in a second color system based upon said corrected digitized image data.

30.   The system for efficiently reproducing color image according to claim 28 wherein said image processing unit one of a predetermined functions including enlargement, reduction and superimposition.

31. The system for efficiently reproducing color image according to claim 28 wherein said conversion unit further comprises a intensity correction unit for correcting intensity of said processed compressed data based upon a intensity conversion look-up table and a chromaticity correction unit for correcting chromaticity of said processed compressed data based upon a chromaticity conversion look-up table.

32. The system for efficiently reproducing color image according to claim 28 wherein said compression unit further comprises a weight table including a predetermined number of weight parameter values, each of said pixel color values being weighted according to a corresponding one of said weight values prior to being compressed into said compressed color image data, each of said weight values includes 2^n where n is an integer and a summation of individual 2^n values where n is an integer, a total of said weight values being 2^n where n is an integer.

33. The system for efficiently reproducing color image according to claim 28 wherein said compression unit further comprises a normalized weight table including a predetermined number of normalized weight parameter values, each of said normalized weight values includes $1/2^n$ where n is an integer and a summation of individual $1/2^n$ values where n is an integer, a total of said normalized weight values being 1.

34. The system for efficiently reproducing color image according to claim 33 wherein said weight table has a selected group of said normalized weight values which include 0.125, 0.25, 0.125, 0.125, and 0.375 which respectively correspond to surrounding pixel positions at (x-1, y-1), (x,

y-1), (x+2, y-1), (x-2, y), (x-1, y), a current pixel
position being at (x, y).

    35. The system for efficiently reproducing color
image according to claim 33 wherein said weight table has a
selected group of said normalized weight values which include
0.375, 0.125, 0.125, 0.25, and 0.125 which respectively
correspond to surrounding pixel positions at (x+1, y), (x+2,
y), (x-1, y+1), (x, y+1), (x+1, y+1), a current pixel
position being at (x, y).